

Introduction

A **Wood Magic Forest Fair** learning station for 4th graders

2023 edition (new science standards highlighted in yellow)

Objective

Students will be introduced to the basic vocabulary (natural resource, renewable, non-renewable, recyclable, and biodegradable), be able to explain the difference between renewable and nonrenewable resources, and explain why using trees is environmentally friendly.

Overview

The students will watch the video, “A Tree’s Dream”; participate in a magic demonstration of a seed turning into a seedling, watch a magic demonstration of the idea that renewable resources will never run out, and discuss the concepts of *renewable vs nonrenewable*, *recyclable*, and *biodegradable*.

2021 SC Science Standards

Earth and Human Activity (ESS3)

4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and how their uses affect the environment.

Materials

A Tree’s Dream video (YouTube)

AV equipment

Black tablecloth

Forest backdrop

Magic vase - filled with water

Magic bag

Pine seedling and several maple seeds

Vocabulary signs: RENEWABLE, NON-RENEWABLE, NATURAL RESOURCE, RECYCLE, BIODEGRADABLE

Examples of nonrenewable resources such as an aluminum can, a plastic bottle, a glass bottle, lump of coal

Paper map

Step-by-Step Procedures

PART 1 - INTRODUCTION TO WOOD MAGIC

1. Greet students as they arrive. Thank them coming. Introduce yourself and others that are helping and briefly review what they will learn from the program. Get them excited about what they are going to do today.
2. Ask Students “Does anybody know what the name of this program is?” Solicit answers, then point out the following:
 - A. “**Wood** – wood comes from trees and trees grow in the forests. Today you will get to see a real sawmill as it cuts a log into boards! You’ll get to feel it, smell it (kind of smells like a gerbil cage, the bottom of it anyway), and if you’re smart some of you may get to taste a special treat from it.”
 - B. “**Magic** – “We think that forests are magical places. They supply the fiber for all the many products we use every day and give us great benefits.”
 - Ask Students “How many of you saw the Forest Fast Break video ‘Wood Products’ before you came to Wood Magic?” That video showed you all the magical things managed forests can give us.
 - But also, we’re going to do some magic for you today. JOKE: #1 says – “Mr. X, you are going to do some magic during lunch aren’t you.” #2 – “That’s right, I’m going to make my pizza disappear.”

- Second Joke: #2 “I understand the schools are promoting healthy eating, so what type of pizza did you order today?” #1 says – “Oh, we ordered special pizza....Broccoli and Liver....just for you (or goat cheese and broccoli, etc..)
- C. **Forest** – “Well, forests are where it’s happening. Forests clean the water we drink and the air we breathe, they provide wildlife habitat, and a lot of the materials we use everyday.
- As a matter of fact, you are going to make some paper today.
 - “You’re going to put on fire clothes and learn about good fire and bad fire in the forest!”
 - “You will get to play a game and pretend you are a forest plant or animal!”
- **JOKE: #1 say – “Some of you may be an eagle flying over the forest. Some of you may be a giant oak growing in the forest”. #2 says – “Mr/Mrs. X is the nut that fell out of the tree.”**
- D. **Fair** – If you’ve ever been to the fair, you know there are tents all around with fun activities
- “Just like at the fair you will get to eat popcorn, and get an up-close look at some forestry equipment!” And you will learn a lot of stuff today.
 - But most of all, we believe, like your teachers do, that **LEARNING IS FUN**, just like at the fair, and we hope you learn a lot.”
 - As a matter of fact, you took a test before you came to see how much you learned and when you get back to school you’ll take another test to see if you learned more.”
- E. “At the end of the day you will get to see a magic show and get a bag of goodies to carry home!”
- F. “Does this sound like fun? We’re going to have a great day!”
- “Today we are going to teach you all about the “magic” of South Carolina’s forest, how trees grow, what we get from our forests by keeping them healthy, how we manage forests, and the importance of forests to our everyday lives.”

PART 2 – VIDEO “A Tree’s Dream”

3. **Introduce video** – about a tree named Tim who has a dream...
 - “Before we begin, we would like to show you a film about a buddy of ours who had a dream. You see, his name is Tim and he’s a tree. Now I know, most trees have names like pine, maple, or oak – but Tim is a special tree. You see, just like many of you have dreams of what you want to be when you grow up, Tim has a dream that he has a destiny too. Now watch the film closely because afterward I am going to ask you about it. Especially, pay close attention to numbers. So, let’s watch and see what his destiny was.”
4. **Show video**
5. **Follow-up questions about video:**
 - A. “Good old Tim. He spent years being a home and shelter for wildlife, keeping the air and water clean, and basking in the sunlight making food for himself and others. But he always dreamed of becoming....A HOUSE.”
 - B. “Now let’s see who paid attention to the film. What were some of the numbers they mentioned in the video – raise your hand.”
 - “How many trees did it takes to build the house in the video?” [100]
 - “OK, who can tell me how many trees foresters plant back for every tree that is cut?” [5]
 - “Are there any other numbers you heard?” Students may mention 2x4 (reinforce that they are going to see a sawmill cut lumber), billions of trees planted each year (reinforce that that is just the ones that humans plant and nature plants even more from seeds).

PART 3 – VOCABULARY MAGIC

6. “**They did pretty good with the math part of the film, now let me ask them some questions about the vocabulary.**” (The other instructor should position himself behind the speaker and hold up the signs for the answers to these questions):
 - “Who can tell me what the name is for materials that we use that comes from nature?” [**NATURAL RESOURCE**] Hold up sign.

- “Tim, or trees, are one of the natural resources we use here on earth to make our lives better. As a matter of fact, when we are born we don’t have anything.” **Other instructor: “We’re born naked!”** That’s right. (Ask the students to take a deep breath) That oxygen you just took in came from the green plants, such as trees. From the moment you are born everything you get comes from nature – from the air you breathe, the food you eat, the clothes you wear, everything comes from natural resources.”
 - “Now we think Tim is a special type of NATURAL RESOURCE because we’ve learned to manage our forests. Because of that, we can gather up the seeds, plant seedlings, and grow trees forever. There’s a reason we have more trees today than 100 years ago, because we put them back”. Ask students *“How many trees do we plant for each one harvested?”*
 - “Does anyone know a word that describes what type of natural resource it is when we can grow more of it or replace it after we have used it?” [**RENEWABLE**] Hold up sign so students can see it without the other instructor seeing it.
 - “We think this word RENEWABLE is a pretty ‘magical’ word. Because with a renewable resource, if we use it wisely, continue to plant back more than we take out, then we will never run out of it – correct. As a matter of fact, you’ve got a trick that can show us how this works don’t you.” – said to other instructor.
- 7. MAGIC TRICK** - ask for a student volunteer or select a student from the audience to be you helper. Use the magic bag that you have prepared with the hidden seedling, Ask the student to drop a seed into the bag. Wave the bag around and ask the student to look into it. (The seed should be visible) “Now that wasn’t much of a trick. We must have left something out – the magic word! Class, what is the magic word that describes how we can grow more of a natural resource?” [**RENEWABLE**] Have the students repeat the word renewable three times while you wave the bag around and flip the switch to make the seedling appear. Have the student look into the bag and pull out the seedling.

Introduce NONRENEWABLE – “You know, we talked about how trees and other natural resources can be grown over and over again so that we won’t run out, but we didn’t mention the other natural resources that..... once you use them they are gone forever. Does anyone know what the term is for those natural resources?” [**NONRENEWABLE**] **hold up sign.** “**We’ve got some examples of non-renewable resources we would like to ask you about.**”

- Hold up several examples of non-renewable resources and **take turns discussing them.** Good examples are lump of coal, iron stake, aluminum can, plastic bottle, gas or oil can (picture). (Highlight that much of the electricity we get comes from coal-burning power plants and that most engines run on gasoline that when it burns, puts a lot of carbon dioxide into the air. Through photosynthesis, trees sequester or trap carbon dioxide and store it in their “bodies.” In fact, carbon stored in the framing of a new house is equivalent to the annual CO2 emissions from five vehicles.)
- “Now suppose I was hiking in the forest and I have my map (hold up piece of paper) and my water (hold up glass jar) and when I finish my hike, would you believe some people just throw these things in the forest?!” “That would be littering”. “But suppose you came back with your children 20 years from now...would the glass jar still be there? How about the piece of paper?” (The bottle would be there but the paper would be gone, rotted away.) Natural resources that can do this are called **BIODEGRADABLE (hold up sign).**
- **JOKE:** “Now that’s a big word, so why don’t I explain it by breaking the word down. **BIO** means life, and **Degrade**..... that’s easy, that’s what Mr. Jerry use to make on his test grades.” **No seriously, degrade means to break down. So biodegradable means something made from living things that can break down in nature.**

- “So, instead of throwing these things in the forest, we should throw them in the trash can so they will be taken to the landfill....Correct?” “Well, not exactly, because things like glass, paper, plastic and aluminum cans can be placed in a special contain where they can be reshaped and made into new things.” “Does anyone know what the term mean to reuse the natural resource these things are made of over and over?” Introduce the term **RECYCLEABLE (hold up the sign)** Remind students that they are going to be doing an activity during the fair where they learn about recycling. Ask the students what we do with these once we have used them (throw them in the trash). All our trash is taken to a landfill. Point out to the students that it is especially important to recycle because we are running out of landfill spaces. It is especially important to recycle nonrenewable materials, since they cannot be replaced in nature.

8. Review the terms

- “So, now let’s stop and look at what we’ve learned so far.” “We think that trees are pretty magical because they are”: (hold up signs as you say each one)
 - An NATURAL RESOURCE
 - That is RENEWABLE
 - And BIODEGRADABLE
 - And RECYCLABLE

9. FINAL MAGIC TRICK – The magic water vase if time allows. Have your partner say that we have one last trick to show you how that word RENEWABLE is such a magical trick.

- Select a student from the class and ask him/her to quickly look into the vase to see that it is filled with water. Give the student a cup to hold while you pour the water out, emptying the vase. Be sure to keep your finger over the hole so that it does not fill back up the first time. Have the student look or turn it up side down to show it’s empty. Release your finger now so that it fills while you talk. Partner – “Well that’s not much of a trick. I can pour water out of a vase till it’s empty!!!” Magic guy – “Oh, we forgot to say the magic word. Everyone, what’s the magic word?” [**RENEWABLE**] Repeat the trick several more times quickly, describing how we can grow more and more as long as we take care and manage our forests correctly.

WRAP-UP

“So, are you ready to go to the rest of the Fair?! Before you head out, let me give you some instructions that will help make sure you have a great day:

- a. School rules still apply – your teacher is responsible for your discipline.
 - b. Follow your guide – he/she knows where you’re going and in order for him/her to be the leader you will need to stay behind him/her.
 - c. **Listen closely to your instructors and raise your hand if you have questions. I’m sure they will be glad to answer them.**
 - d. If you pay close enough attention, you will leave today knowing how to do a magic trick yourself and you will get a bag of goodies.”
2. Dismiss classes one at a time with their guides – direct them as to which door to leave out of.

INTRODUCTION OUTLINE

1. Greet students. Review what they are going to experience at the Wood Magic Fair.
2. Introduce video – remind them to watch carefully for numbers. That we will be asking them questions about the film afterward.
3. Ask students if they heard any numbers: 5 trees planted for each one harvested, 25 trees in the averaged sized house, billions of trees planted in the US each year, 2x4 lumber
4. Review vocabulary terms:
 - a. NATURAL RESOURCE – everything we use comes from nature
 - b. RENEWABLE – some resources can be grown over and over again
5. Introduce magic trick by emphasizing RENEWABLE as a “magic word”, that we may never run out of trees because we put them back after we use them.
6. MAGIC TRICK – change bag changes seed into seedling.
7. Introduce NONRENEWABLE. Show examples of nonrenewable resources (coal, glass, plastic, gas and oil).
8. Ask students what would happen if you threw a glass bottle and a piece of paper into the woods. Introduce the term BIODEGRADABLE.
9. Describe what BIODEGRADABLE means.
10. Introduce RECYCLABLE and the concept that recycling deals with trash and saves landfill space. It is especially important to recycle nonrenewable resources.
11. Review vocabulary terms: NATURAL RESOURCES, RENEWABLE, NONRENEWABLE, BIODEGRADABLE, AND RECYCLABLE.
12. Emphasize that we think using trees is an environmentally friendly thing because trees are a natural resource that is renewable, biodegradable, and recyclable. As long as we take care of and manage our forests we will never run out of trees.
13. Introduce final magic trick by reviewing the fact that trees are RENEWABLE and that’s magical.
14. Final magic trick – water vase
15. Wrap-up : School rules still apply, teacher is in charge of discipline, follow your guides, raise your hands and ask lots of questions, and you may get a bag of “goodies” in the end with your own magic trick.
16. Dismiss classes one at a time to guides.